

## Pemulihan kerusakan oksidatif hati tikus (*Rattus norvegicus*) pasca penghentian pemberian monosodium glutamat (MSG) = Oxidative damage recovery of liver rats *Rattus norvegicus* post termination exposure of monosodium glutamate (MSG)

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### Abstrak

Monosodium glutamat (MSG) merupakan garam natrium dari glutamat yang merupakan asam amino nonesensial yang dapat bersifat eksitotoksik. Terdapat dugaan bahwa glutamat berpotensi menyebabkan kerusakan oksidatif di hati dengan mekanisme yang sama dengan eksitotoksitas karena reseptor glutamat juga ditemukan di hati. Penelitian ini bertujuan untuk mengetahui adanya pemulihan kerusakan oksidatif hati tikus setelah pemberian MSG dihentikan. Sebanyak 30 ekor tikus putih (*Rattus norvegicus*) jantan dewasa dibagi menjadi 3 kelompok: kontrol (akuades), kelompok MSG 4 g/kg dan 6 g/kg. Perlakuan diberikan melalui sonde selama 30 hari. Setiap kelompok kemudian dibagi lagi menjadi 2 berdasarkan waktu memamatkannya (hari ke-45, dan hari ke-59). Organ hati diambil untuk pemeriksaan kadar MDA, GSH dan aktivitas spesifik enzim katalase. Kadar MDA meskipun tidak berbeda bermakna pada semua kelompok tetapi cenderung menurun, kadar GSH meningkat dan berbeda bermakna ( $p=0,017$ ), aktifitas spesifik katalase menurun dan terdapat perbedaan bermakna ( $p=0,012$ ). Tidak terdapat korelasi antara kadar MDA, GSH, dan aktivitas spesifik enzim katalase pada jaringan hati tikus setelah penghentian pemberian MSG. Penelitian ini menunjukkan bahwa pasca penghentian pemberian MSG dengan dosis 4 gr/kg BB dan 6 gr/kg BB selama 14 dan 28 hari dapat menyebabkan penurunan kadar MDA, peningkatan kadar GSH, dan penurunan aktivitas spesifik enzim katalase jaringan hati tikus. Hal ini mengindikasikan telah terjadi pemulihan kerusakan oksidatif akibat penghentian total pemberian MSG.

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Monosodium glutamate (MSG) is the sodium salt which is can be excitotoxic. Glutamate could potentially cause oxidative damage in the liver by excitotoxicity because glutamate receptors are also found in the liver. This study aims to investigate the oxidative damage recovery rat liver after administration of MSG is stopped. A total of 30 adult male rats (*Rattus norvegicus*) were divided into 3 groups: control (distilled water), MSG 4 g / kg and the last group MSG 6 g / kg. The treatment is given through a sonde for 30 days. Each group was further divided into two by sacrificed time as follow, day 45, and day 59. The liver was taken for measurement of MDA, GSH levels and the specific activity of catalase. MDA levels although not significantly different in all groups but tend to decline. Different levels of GSH increased significantly ( $p = 0.017$ ) during recovery, the specific activity of catalase were decline ( $p=0.012$ ). There was no correlation between MDA, GSH, and specific activity of catalase in the liver after cessation of MSG. This study shows that cessation administration of that certain doses of MSG can lead to decreased levels of MDA, GSH levels, and a decrease in the specific activity of catalase rat liver tissue. This indicates that there was a recovery process of oxidative damage as a result of the cessation of administration of MSG.